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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,438	03/12/2004	Ki-Hung Lee	AB-1354 US	6225

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EXAMINER	
CALEY, MICHAEL H	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,438	LEE ET AL.	
	Examiner	Art Unit	
	Michael H. Caley	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 4, 8, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. Patent No. 5,945,256 "Kim '256") in view of Hirosue et al. (U.S. Patent No. 6,504,581 "Hirosue").

Regarding claims 2, 8, and 9, Kim '256 discloses a method of manufacturing a liquid crystal display panel by a divisional exposure with a plurality of shots including first and second shots adjacent to each other (Figure 4), the method comprising:

preparing a stitch area (Figures 4 and 5 elements 10 and 130) which is an overlapping area of the first and the second shots at a boundary between the first shot and the second shot and includes a plurality of unit areas (Figure 5), each unit area being light exposed or light-blocked in the first and the second shots (Column 4 lines 38-42); and

determining the positions or the sizes of the light-exposed unit areas or the light-blocked unit areas, the number of the light-exposed unit areas or the light-blocked unit areas gradually decreasing or increasing along a direction for the first shot to the second shot (Figure 5; Column 4 line 54 – Column 5 line 2), the positions of the number of the light-blocked areas or the light-exposed areas in the second shot being opposite to those in the first shot (Column 4 lines 29-64),

the light blocked areas and the light-exposed areas having a distribution that is uniform (Column 5 lines 3-10);

wherein the determination comprises:

a determined pitch of the unit areas (Column 4 lines 44-46);

a determined stitch area including a plurality of unit areas arranged in an NxM matrix (Column 4 lines 46-53);

a determined number of light-exposed unit areas or light-blocked unit areas in each row or in each column for the first and the second shots (Column 4 lines 54-64).

Kim '256 fails to disclose the step of determining positions of the light-exposed unit areas or light-blocked unit areas in each row or in each column for the first and the second shots using the random number generator, wherein each generated number corresponds to the position of a unit area within each row or column. Kim '256, however, describes the shapes of the shot portions at the boundary as arbitrary and that the light-blocked and light-exposed regions of each shot as mixed at the boundary region, and without any type of mixing pattern (Figure 5; Column 4 lines 43-44, lines 64-67). Furthermore, Hirosue teaches a random number generator function for randomly placing the exposed areas for each shot. Hirosue teaches an individual number as generated corresponding to the position of a unit area within the row (Column 5 line 51 – Column 6 line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the positions of the light-exposed unit areas in each row or column by a random number generator such that each generated random number corresponds to the

position of a unit area within each row or column. Hazama teaches a random configuration as effective to distribute the division pattern elements between shots so that the stitch areas are inconspicuous (Column 9 lines 40-45). One would have been motivated to use a random number generator to determine the positions of the light-exposed and light-blocked areas to ensure that the boundary areas between shot exposures are unnoticed.

Regarding claims 4 and 13, Kim '256 discloses the unit area as including a pixel area, a plurality of pixel areas, or a portion of a pixel area (Column 5 lines 12-14).

Claims 3, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hirosue and in further view of Takasugi et al. (U.S. Patent No. 6,606,141 "Takasugi").

Regarding claims 3 and 11, Kim '256 as modified by Hirosue fails to disclose the unit area NxM matrix as configured such that N/M or M/N is a natural number. Takasugi, however, teaches a stitch area (Figure 4 element 45, Figures 5A and 5B; Column 7 line 61 – Column 8 line 10) in which N/M equals 2 (20 units across, 10 down).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have configured the stitch unit area disclosed by Kim '256 such that N/M is a natural number. One would have been motivated to choose such a stitch size as an engineering expediency such as to make the boundary region less conspicuous by broadening the graduation region.

Regarding claim 12, Kim '256 as modified by Takasugi discloses the proposed shot direction and number of light-exposed areas for each column (Figure 5).

Claims 5, 6, 8, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hazama et al. (U.S. Patent No. 6,583,854 "Hazama").

Regarding claims 5, 8, and 14, Kim '256 discloses each pixel area as comprising two unit areas (Column 5 lines 11-13) Kim '256 fails to disclose the pixel area as provided with a domain defining member disposed between adjacent unit areas in which positions or sizes of the light-exposed unit areas or the light-blocked unit areas are determined by a random number generator. Hazama, however, teaches such a unit area (Figures 9-12) with a domain defining member (any of elements ep1-ep4) disposed between adjacent unit areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the unit areas and domain defining members as taught by Hazama in the display device manufacturing method disclosed by Kim '256. One would have been motivated to form the unit areas and domain defining members accordingly so that individual components in each pixel may be randomized in individual and differing configurations to further aid in making an inconspicuous stitch (Column 20 lines 5-14). Any of elements ep1-ep4 may be defined as a domain defining member. Such elements define boundaries between unit areas as seen in Figures 9A-12B.

Regarding claims 6 and 15, Kim '256 fails to disclose a boundary line between adjacent unit areas as extending parallel to the gate lines. Hazama, however, teaches such a unit area with a boundary line between adjacent unit areas as extending parallel to the gate lines (Figures 9-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the unit areas and domain defining members as taught by Hazama in the display device manufacturing method disclosed by Kim '256. One would have been motivated to form the unit areas and domain defining members accordingly so that individual components in each pixel may be randomized in individual and differing configurations to further aid in making an inconspicuous stitch (Column 20 lines 5-14).

Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hazama and in further view of Kim et al. (U.S. Patent No. 6,100,953 "Kim '953").

Kim '256 as modified by Hazama fails to disclose fails to disclose the domain defining member as comprising a cutout of the common electrode. Hazama, however, teaches electrodes located within the pixel area as division pattern elements (Figures 12A and 12B elements Ep4). Kim '953 teaches such electrodes as including common electrodes (Figures 2 and 3 element 23) having a cutout (element 19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a domain defining member to comprise a cutout of the common electrode. Hazama teaches multiple domain defining members in each pixel so as to further aid in making an inconspicuous stitch. Kim '953 teaches a cutout in the common electrode located within the

pixel region to form a multi-domain effect to improve the contrast ratio of the display at inclined viewing angles (Column 6 lines 3-6).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hirosue and in further view of Edelkind et al. (U.S. Patent No. 5,987,483 "Edelkind").

Kim '256 as modified by Hirouse fails to disclose the type of random number generator. Edelkind, however, teaches a pseudorandom number generator as favorable over a truly random number generator (Column 1 lines 46-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to generate the random numbers from a pseudorandom number generator. One would have been motivated to use a pseudorandom number generator to avoid the necessity of specialized hardware for generating a truly random number (Column 1 line 45 – Column 2 line 6).

Response to Arguments

Applicant's arguments filed 8/2/06 have been fully considered but they are not persuasive.

Applicant contends that the prior art fails to disclose the method of manufacturing a liquid crystal display panel as proposed in independent claims 2, 5, and 8 in which the positions of the number of the light-blocked areas or the light-exposed areas in the second shot are opposite to those in the first shot, the light blocked areas and the light-exposed areas having a

distribution that is uniform. Kim '256, however, discloses these limitations as cited above (Column 4 lines 29-64, Column 5 lines 3-10). Kim '256 discloses two shots (Column 4 lines 29-30). The positions of the number of the blocked or exposed areas being opposite between shots is evident from Figure 5 and the description (Column 4 line 43 – Column 5 line 2). From Figure 5, the white areas pertain to exposure portions of a first shot 110 and gray areas pertain to exposure portions of a second shot 120 (also see Figure 4). In the intermediate portion magnified in Figure 5, the shot pertaining to the white areas is exposed in a manner opposite to the second shot pertaining to the gray areas. Kim '256 further shows the light-blocked areas and the light-exposes areas as having a distribution that is uniform (Column 5 lines 3-6).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael H. Caley
October 29, 2006
mhc

ANDREW SCHECHTER
PRIMARY EXAMINER